

CLAIMS

1. A transmission device comprising:
a redundant bit addition unit for adding redundant
5 bit data to each bit of provided data to generate coded
data; and
a modulation unit for sending a modulated wave
signal which has been generated based on the coded data
generated by said redundant bit addition unit.

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2. The transmission device according to claim 1,
wherein:

15 said redundant bit addition unit arranges symbols
added with said redundant bit data such that a Euclidean
distance of the data added with the redundant bit data
becomes large.

3. The transmission device according to claim 1,
wherein:

20 said redundant bit addition unit adds the
redundant bit data to each bit of said provided data
such that a Gray code is generated.

25 4. The transmission device according to any of
claims 1 to 3, wherein:

30 the data provided to said redundant bit addition
unit is data in which high and low of significance
levels thereof are predetermined, and said redundant bit
addition unit adds the redundant bit for the bit data
having the high significance level among said bit-

arranged data.

5. The transmission device according to any of claims 1 to 4, wherein:

5 said modulation unit performs modulation according to a multivalued FSK method.

6. A reception device for receiving a signal which has been generated based on data added with redundant 10 bit data such that coded data is generated, said reception device comprising:

 a demodulation unit for demodulating said received signal;

15 a symbol decision unit for performing a symbol decision at each Nyquist interval for the signal which has been demodulated by said demodulation unit;

 a bit conversion unit for converting a symbol value, which has been provided by performing the symbol decision by said symbol decision unit, into a bit value;

20 and

 a data recovery unit for composing a data string by deleting the added redundant bit from the data of the bit value, which has been converted by said bit conversion unit, to restore original data.

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7. The reception device according to claim 5, wherein:

 said received signal is a signal which has been modulated according to a multivalued FSK method, said 30 demodulation unit demodulates the received signal by

converting the received signal into a signal of a voltage corresponding to a frequency of said received signal, and said symbol decision unit performs the symbol decision by comparing the voltage of the signal,
5 which has been demodulated by said demodulation unit, with preset threshold values.

8. The reception device according to claim 6 or 7, wherein:

10 the bit data which has been generated by said bit conversion unit is data in which bits are arranged such that high and low of significance levels thereof are predetermined and the bit data having the high significance level is added with the redundant bit, and
15 wherein said data recovery unit deletes the redundant bit added to said bit data having the high significance level.

9. A method for transmitting data, said method comprising the steps of:

adding a redundant bit to each bit of provided data to generate coded data; and

sending a signal which has been generated based on said generated coded data.

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10. A method for receiving data, said method comprising the steps of:

receiving a signal which has been generated based on data added with redundant bit data such that coded
30 data is generated;

demodulating the received signal;
performing a symbol decision at each Nyquist interval for the signal which has been demodulated;
converting a symbol value provided as a result of
5 the symbol decision into a bit value; and
composing a data string by deleting the added redundant bit from the data of said bit value which has been converted, to restore original data.